**IT Applications Unit 3**

**Ch 1 Problem Solving**

**Characteristics of data and information**, **p 7- 11**

For data to become meaningful it needs to be processed or manipulated. Numbers in a spreadsheet don’t have any significance until they are put into context and organised into groups.

Primary sources of data are first-hand sources where data is obtained from surveys, interviews, letters and direct observation. Secondary sources of data are gathered through the published or available work of others, such as internet and online services.

**Data integrity or valuable data**

For data to be of value it has a number of characteristics.

**Suitability-** data must be entered into the computer in a suitable format. Where the data is consistent through out. An example is when dates are being entered they should be in the same format each time (14/12/08).

**Reliability-** The data can be unreliable from some sources so the reliability of the source needs to be checked. The reliability of the data can be checked by verifying the information from more than one source.

**Accuracy-** The data needs to be accurate. Mistakes can be made through inattention, misreading or errors in transcription or misinterpreted.

**Timeliness-** The data needs to be processed while it is current because important decisions may need to be made depending on this data. An example is share prices may fluctuate; therefore a decision to buy or sell should be based on current prices.

**Freedom from bias-** Data needs to be collected from a variety of reliable sources. If data is found from only one source and that source appears to have bias, it would affect the reliability of the information. A number of influences can result in the introduction of bias into your data: vested interest, timing and an inappropriate sample (or small sample size)

**Characteristics of Information**

Effective decision-making is predicated on information processing certain qualities.

**Relevant information-** information must be relevant so that the information is not misleading. In some cricket organisations they have to register players every year and after many years these players aren’t playing anymore so the information becomes irrelevant.

**Complete information-** it is important to include all relevant information. If the relevant information is not all included the report is incomplete.

**Timely information-** Information must be on time. There is no point receiving notification after the event has happened.

**Accurate information-** Information must be accurate. Incorrect information will lead to wrong decisions being made or problems remaining unsolved. If the information is incorrect the user may not know it is incorrect and make a mistake in filling out the form.

**Unbiased information-** it is important to avoid situations that could have bias and needs to be carefully designed to ensure this.

**Information Processing Steps**

There are nine information processing steps.

**Acquisition-** To gather the data using a variety of methods: observing, surveying, interviewing, measuring, polling ect.

**Input-** A range of devices are used to enter data into the information system such as: keyboard, mouse, scanner, touch screen, microphone ect. An input is the device that allows data to be represented in electronic format.

**Validation-** is the process in which data is checked for it being correct and complete. Manual validation requires the data entry operator to proofread for accuracy, completeness and reasonableness. Electronic validation is: range checks (values that fall between a certain ages), spellchecking and grammar checking.

**Manipulation-** It is altered of changed into a different state. This is when data is converted to information. The type of manipulation depends on the software tool used. Some examples if data being manipulated into information include: searching for records, creating charts in a spread sheet, altering images using graphics software ect.

**Storage-** Both data and information need to be saved to disk so they can be used later. Storage devices include: floppy disks, hard disks, tapes, DVDs, USB drives ect.

**Retrieval-** when data is stored it needs to be retrieved from the storage medium and transferred to the computer’s main memory.

**Output-** can include: text, graphics, audio, video ect. Various hardware to produce output are: monitors, printers, speakers, multimedia projectors.

**Communication, (Videoconferencing) -** This is when it is distributed to the intended users. It can be achieved via: email, mobile phones, videoconferencing and websites.

**Disposal or archive-**is if information needs to be stored for a certain amount of time and then disposed. Disposal involves deleting files and shredding paper documents.

**Keyword: ASIVCMSOCD (All Students In Video Conferencing Must Stay off Cheap Drugs)**

**Reasons for using Information**

The four purposes of information are to persuade, inform, educate and entertain.

**Characteristics of audiences**

Information should meet the needs of its users.

The factors that must be considered in presenting information:

Audience size

Profile

Background

Age

Education level

Location

Culture

Special needs

**Information characteristics in organisations, p 14**

**Information flow** relates to various directions that information moves to and from and within an organisation. The smaller the company the better the information will be to the customer and will more likely result in a sale, than if the customer has to wait.

The four hierarchy levels within an organisation are:

**Senior management** (e.g. Chief executive officer)

**Middle management** (e.g. Director, manager)

**Operational management** (e.g. supervisor)

**Operational workers** (e.g. computer operators, factory workers)

**Structure of Information**

Information can be categorised by its structure.

**Detailed Reports-** involve the communication of the assembled records. For example, an I.T student wanting to know their recent results on an outcome may be provided with a detailed report about each of the criteria.

**Summary Reports-** brief version of the detailed report. They are often used by middle and senior management to see what is happening at operational level.

**Aggregate Reports-** similar to detailed reports but only relate to one particular factor or subject. It is used by middle management to find out past sales of a particular product over the past 2 years.

**Sample Reports-** shows an idea of an overall solution. Taking a sample of the detailed information means that manages do not need to wade though irrelevant material.

**Exception Reports-** shows a variation to the set or target result and helps managers identify situations that require actions.

**Decision-Making in Organisations:**

Four hierarchy levels within the organisation:

**Senior Management decision-making-** strategic decisions which relate to long term goals of an organisation. Strategic decision-making involves studying market trends, analysising concerns etc. An example of strategic problems include: should we sell part of the company’s assets to manage debt?

**Middle management decision-making-** tactical decisions to solve problems that affect the running of the organisation. An example is should a major sporting event be sponsored to help raise our community profile?

**Operational management decision-making-** deal with day to day operational decisions, such as: directing customer complaints, replacing a worker that calls in sick, ordering more stock. They are decisions made on the spot or within a small time frame. Detailed information is used.

**Operational workers’ decision-making-** they make day-to-day decisions that help the efficient running of the business. They make decisions such as: who is next in queue?, where can I direct a particular customer query? Ect. They are short-term decisions that have little bearing on the success of the business.

A Strategic decision relates to the long term planning of the organisation and a tactical decision affects the running of an organisation and impacts on the allocation of resources and the establishment of policies.